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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/766,757      | 01/27/2004  | Rong-Chang Liang     | 07783.0088.NPUS000  | 2261             |

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EXAMINER

TRA, TUYEN Q

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2873

DATE MAILED: 07/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                 |              |  |
|------------------------------|-----------------|--------------|--|
| <b>Office Action Summary</b> | Application No. | Applicant(s) |  |
|                              | 10/766,757      | LIANG ET AL. |  |
|                              | Examiner        | Art Unit     |  |
|                              | Tuyen Q. Tra    | 2873         |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 45-64 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10-15, 45-61, 63 and 64 is/are rejected.
- 7) ☒ Claim(s) 8, 9 and 62 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

Applicant's arguments, see REMARK, filed 6/13/2006, with respect to the rejection of claims 1 and 45 under Zang et al. (U.S. 2003/0207963 A1) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, new grounds of rejection are made in view of Hsu et al. and Chiang.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1-5, 10, 12, 45, 46-59 and 64 are rejected under 35 U.S.C. 102(a) as being anticipated by Chiang (U.S. Patent 4,285,801).

a) With respect to claims 1 and 2, Chiang discloses an electrophoretic displays composition in abstract comprising of non-aqueous electrophoretic capsules comprising a halogenated polymeric shell and an electrophoretic composition enclosed therein wherein the electrophoretic composition comprises charged pigment particles or pigment-containing microparticles dispersed in a dielectric solvent discloses halogenated/fluorinated polymer/oligomer (col. 2, lines 46-48).

b) With respect to claims 45 and 46, Chiang discloses a capsules for electrophoretic displays and methods for making the same in Figure 3 comprising of non-aqueous electrophoretic capsules comprising a halogenated polymeric shell and an electrophoretic composition enclosed therein wherein the electrophoretic composition

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comprises charged pigment particles or pigment-containing microparticles dispersed in a dielectric solvent (col. 9, lines 29-36, table 1), a binder binding the non-aqueous capsules, and a first substrate on which the capsules and binder are coated (col. 22, lines 7-20).

c) With respect to claims 57-59, Chiang discloses wherein the dielectric solvent is a halogenated solvent or solvent mixture; wherein the halogenated solvent is a fluorinated solvent having a fluorine content higher than 20% by weight; wherein the halogenated solvent is a fluorinated solvent having a fluorine content higher than 50% by weight.

d) With respect to claims 10, 12 and 64, Chiang et al. discloses wherein the electrophoretic composition further comprises a charge control agent (col. 17, line 65).

e) With respect to claims 47-51, Chiang further disclose wherein a second substrate disposed onto the capsule layer; wherein at least one of the two substrates is an electrode substrate; wherein at least one of the two substrates is transparent; wherein at least one of the substrates comprises an electrode layer facing the capsule layer; wherein the substrate or electrode layer is disposed onto the capsule layer by coating, printing, vapor deposition, sputtering, lamination or a combination thereof.

f) With respect to claims 52-56, Chiang further disclose wherein the protective overcoat comprising a particulate filler; wherein the electrophoretic display device further comprises an overcoat on the non-capsule-coated surface of the first substrate; wherein the electrophoretic display further comprising an overcoat on the non-capsule-contacted surface of the second substrate.

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3. Claims 1-5 and 13-15 are rejected under 35 U.S.C. 102(a) as being anticipated by Hsu et al. (2006/0132896 A1).

a) With respect to claims 1 and 2, Hsu et al. discloses a core-shell particles for electrophoretic display comprising of an halogenated polymeric shell (a core-shell is microencapsulated or coated with polymer layer, paragraph [0067]) and an electrophoretic composition enclosed therein wherein the electrophoretic composition comprises charged pigment particles dispersed in a dielectric solvent discloses halogenated/fluorinated polymer/oligomer (see Paragraph 0071).

*[0071] The reactive protective colloids may be prepared by, for example, linking molecules containing desirable functional groups for interfacial polymerization/crosslinking, with a low molecular weight compound, polymer or oligomer comprising a halogenated, preferably fluorinated, main chain or side chain. The low molecular weight compounds include, but not limited to, alkanes, aromatic compounds and arenes.*

b) With respect to claims 3-5, Hsu et al. further discloses wherein the dielectric solvent is a halogenated solvent or solvent mixture; wherein the halogenated solvent is a fluorinated solvent having a fluorine content higher than 20% by weight; wherein the halogenated solvent is a fluorinated solvent having a fluorine content higher than 50% by weight.

e) With respect to claims 13-15, Hsu et al. further discloses wherein the additive is a catalyst for the shell-forming reaction, a charge adjuvant, an electrolyte, an antioxidant, a UV stabilizer, a singlet oxygen quencher, a gas absorber, a surfactant, a protective colloid or polymeric dispersant or a rheology modifier; wherein the additive is halogenated; wherein the additive is fluorinated (col. 2, line 50-col. 3, line17).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al. (U.S. Pat. 2006/0132896 A1), as applied to claim 1 above, in view of Rao et al. (US Pat. 6,372,838B1)

Hsu et al. discloses a capsules for electrophoretic displays and methods for making the same in Figure 3 comprising of non-aqueous electrophoretic capsules comprising a halogenated polymeric shell and an electrophoretic composition enclosed therein wherein the electrophoretic composition comprises charged pigment particles or pigment-containing microparticles dispersed in a dielectric solvent.

However, Hsu et al. does not disclose the fluorinated solvent or solvent mixture comprises perfluoropolyether or hydrofluoropolyether. Within the same field of endeavor, Rao et al. discloses a solvent mixture with perfluoropolyether (col. 14. line 25).

It would have been obvious, therefore, at the time the invention was made to a person having skill in the art to construct the acoustic imaging apparatus with a dielectric solvent such as disclosed by Hsu et al., with solvent comprising

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perfluoropolyether or hydrofluoropolyether such as discloses by Rao et al., for purpose of making electrophoretic solvent.

6. Claims 60 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zang et al. (U.S. Pat. 6,262,833 B1), as applied to claim 45 above, in view of Rao et al. (US Pat. 6,372,838B1)

Zang et al. discloses a capsules for electrophoretic displays and methods for making the same in Figure 3 comprising of non-aqueous electrophoretic capsules comprising a halogenated polymeric shell and an electrophoretic composition enclosed therein wherein the electrophoretic composition comprises charged pigment particles or pigment-containing microparticles dispersed in a dielectric solvent.

However, Zang et al. does not disclose the fluorinated solvent or solvent mixture comprises perfluoropolyether or hydrofluoropolyether. Within the same field of endeavor, Rao et al. discloses a solvent mixture with perfluoropolyether (col. 14. line 25).

It would have been obvious, therefore, at the time the invention was made to a person having skill in the art to construct the acoustic imaging apparatus with a dielectric solvent such as disclosed by Zang et al., with solvent comprising perfluoropolyether or hydrofluoropolyether such as discloses by Rao et al., for purpose of making electrophoretic solvent.

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al. (U.S. Pub. 2006/0132896), as applied to claim 1 above, in view of Jacobson et al. (US Pat. 6,323,989 B1)

Hsu et al. discloses a capsules for electrophoretic displays and methods for making the same in Figure 3 comprising of non-aqueous electrophoretic capsules comprising a halogenated polymeric shell and an electrophoretic composition enclosed therein wherein the electrophoretic composition comprises charged pigment particles or pigment-containing microparticles dispersed in a dielectric solvent.

However, Hsu et al. does not disclose a contrast colorant. Within the same field of endeavor, Jacobson et al. discloses an electrophoretic medium with a contrast colorant (col. 2. lines 35-36).

It would have been obvious, therefore, at the time the invention was made to a person having skill in the art to construct the acoustic imaging apparatus with a dielectric solvent such as disclosed by Hsu et al., with electrophoretic composition comprising a contrast colorant such as discloses by Jacobson et al., for purpose of modifying particle surfaces.

8. Claim 63 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zang et al. (U.S. Pat. 6,262,833 B1), as applied to claim 1 above, in view of Jacobson et al. (US Pat. 6,323,989 B1)

Zang et al. discloses a capsules for electrophoretic displays and methods for making the same in Figure 3 comprising of non-aqueous electrophoretic capsules comprising a halogenated polymeric shell and an electrophoretic composition enclosed therein wherein the electrophoretic composition comprises charged pigment particles or pigment-containing microparticles dispersed in a dielectric solvent.



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However, Zang et al. does not disclose a contrast colorant. Within the same field of endeavor, Jacobson et al. discloses an electrophoretic medium with a contrast colorant (col. 2. lines 35-36).

It would have been obvious, therefore, at the time the invention was made to a person having skill in the art to construct the acoustic imaging apparatus with a dielectric solvent such as disclosed by Zang et al., with electrophoretic composition comprising a contrast colorant such as discloses by Jacobson et al., for purpose of modifying particle surfaces.

#### ***Allowable Subject Matter***

9. Claims 8, 9 and 62 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The reason for the indication of allowable subject matter is that (claim 8, 9, 62) the pigment particles are  $\text{TiO}_2$  particle disclosed in the claims is not found in the prior art.

#### ***Conclusion***

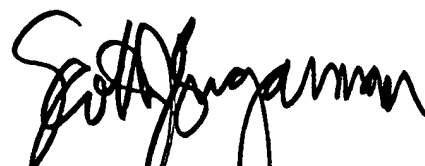
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuyen Tra whose telephone number is (571) 272-2343. The examiner can normally be reached on Monday to Thursday from 8:30am to 6:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack, can be reached on (571) 272 - 2333. The fax number for this Group is (571) 273-8300.

TT

June 28, 2006



Scott J. Sugarman  
Primary Examiner